

It is noted that the Examiner has not rejected claim 6 on any grounds. Accordingly, it is respectfully submitted that claim 6 has effectively been indicated as allowable. As a result, Applicants have rewritten claim 6 into independent form (with minor changes to improve grammar).

No new matter has been added.

II. Rejection of claims 5, 9 and 17 under 35 U.S.C. § 112, second paragraph

Claim 5, 9 and 17 stand rejected under 35 U.S.C. § 112, second paragraph. It is respectfully submitted that the claims, as amended, overcome the rejection under 35 U.S.C. § 112, second paragraph.

Claims 5, 9 and 17 have been amended from “wherein the heat receiving face protrudes further outwards than said column” to --wherein the heat receiving face protrudes further outwards than *said pillar-type protrusions*--. Support for claims 5, 9 and 17, as amended, can be found beginning on page 16, line 22 of the specification with respect to the fourth embodiment. For example, on page 17, lines 1-3 (corresponding to Figures 6 and 7A), Applicants' specification describes a "protuberant heat conducting plate section 2a" as a portion of the column 2 that extends further outward from the column 2 than the nearest fin 1. The purpose of the plate section 2a is **to provide some space between the heat receiving face thereon and the fins** in order to lead airflow to the *surface* of the fins nearest the heat receiving face (*see* page 17, lines 3-9 of Applicants' specification), thereby increasing the efficiency of the heatsink.

Claims 5, 9 and 17, as amended, express the spaced relation between **the heat receiving face** and the **pillar-type protrusions** based on the above description. That is, as shown in Figure 7C for example, the recited structure of claims 5, 9 and 17 allows air to flow against the surface

of the fins closest to the heat receiving face. Accordingly, it is respectfully submitted that amended claims 5, 9 and 17 fully comply with all requirements of 35 U.S.C. § 112, second paragraph.

In view of the foregoing, it is respectfully submitted that claims 5, 9 and 17 are definite, and that the pending rejection of claims 5, 9, 17 under 35 U.S.C. §112, second paragraph, be withdrawn.

III. Rejection of claims 1, 2, 3, 5, 7, 9, 15-17 and 19-21 under 35 U.S.C. § 102(b)

(1) Hatada et al.; Kuno et al.; and Jordan et al.

Claim 1 stands rejected under 35 U.S.C. §102 over Hatada et al.; claims 1, 2 and 5 stand rejected over Kuno et al.; and claims 1, 2, 5, 15-17 and 19-21 stand rejected over Jordan et al.

However, Applicants have amended independent claims 1 and 15 by adding the feature of modified claim 3, that is “a column having a heat receiving face, wherein a cross section of said column has one shape selected from **trapezoid, triangle, and a shape whose sectional width decreases as it extends away from said heat receiving face.**”

As admitted by the Examiner (i.e., claim 3 was not rejected by these references), none of Hatada et al., Kuno et al., and Jordan et al. disclose or suggest “a cross section of [the] column [having any one of the shapes selected from a] **trapezoid, triangle, and a shape whose sectional width decreases as it extends away from said heat receiving face.**” In contrast, they only disclose **rectangular** columns.

For at least the reason set forth above, Applicants respectfully submit that claims 1 and 15, as amended, and their dependent claims, are not anticipated by Hatada et al., Kuno et al., or Jordan et al.

(2) Elgar et al.

Claims 1-3, 5, 7 and 9 stand rejected under 35 U.S.C. §102 over Elgar et al. This rejection is respectfully traversed for the following reasons. Applicants have canceled claim 3, and amended claim 1 by adding the feature of modified claim 3. That is, the limitation of claim 3 (now incorporated into claim 1) has been slightly modified in order to provide better grammar. In particular, the recitation "tapers off as it goes away at right angle" has been changed to --decreases as it extends away--. Accordingly, the rejection of claim 3 is moot.

Amended claim 1 recites in pertinent part, "a plurality of pillar-type protrusions ... wherein at least one continuous row of said pillar-type protrusions extend from said column at the *same angle* relative to said column, each of said pillar-type protrusions in said at least one continuous row extending from said column at the *same vertical height* of said column."

It is respectfully submitted that Elgar et al. does not disclose or suggest the recited construction. Rather, as shown in Figure 2 of Elgar et al., each of the continuous rows of the alleged pillar-type protrusions alternate between a protrusion 33 and a splayed protrusion 34 (i.e., protrusions 33 or protrusions 34 do not by themselves constitute a "continuous" row because they are separated by the other type of protrusion), whereby the splayed protrusion 34 extends from the column at a *different* angle than the protrusion 33 (Figure 1 of Elgar et al. does not disclose a row of protrusions, on a given face of the column, at the same vertical height; rather, Figure 1 discloses *one* protrusion 12 at a given height). Accordingly, the present invention avoids the turbulent air flow resulting in the Elgar et al. device, thereby allowing the present invention to provide a higher *rate* at which heat is pulled away from the "protrusions."

Moreover, it is respectfully submitted that none of the cited prior art discloses or suggests the combination of a column with "a cross section ... selected from trapezoid, triangle, and a

shape whose sectional width decreases as it extends away from said heat receiving face" and "a plurality of pillar-type protrusions ... wherein at least one *continuous row* of said pillar-type protrusions extend from said column at the *same angle* relative to said column, each of said pillar-type protrusions in said at least one continuous row extending from said column at the *same vertical height* of said column", as recited in claim 1.

For the foregoing reasons, it is respectfully submitted that claim 1 as amended (and the addition of claim 3), and its dependent claims, are patentable over Elgar et al.

It should be noted that claims 7 and 9 are *dependent* claims of now independent claim 6. Accordingly, because claim 6 has NOT been rejected under 35 U.S.C. §102 over Elgar et al., it is respectfully submitted that the rejection of claims 7 and 9 is improper

Further, as implicitly acknowledged by the Examiner (by not rejecting claim 6), none of the cited prior art discloses or suggests, *inter alia*, the feature of claim 6, that is, "wherein the vertical distance to the heat receiving face from the end of each of said pillar-type protrusions on the column side is shorter than that from the other end."

For the foregoing reasons, it is respectfully submitted that claims 7 and 9 are patentable over Elgar et al.

IV. Rejection of claims 4, 8 and 15-21 under 35 U.S.C. § 103(a)

(1) Claims 4 and 8

Claims 4 and 8 stand rejected under 35 U.S.C. §103(a) over Kuno et al. or Elgar et al. in view of Lin; and under 35 U.S.C. §103(a) over Jordan et al. in view of Lin. These rejections are respectfully traversed for the following reasons. As claim 4 depends on claim 1, it is respectfully submitted that for at least the reasons discussed above with respect to claim 1, claim 4 is patentable over the cited prior art.

In addition, it is respectfully submitted that the proposed combination is improper. In particular, the Examiner has relied solely on improper hindsight reasoning by picking elements from the prior art and using Applicants' specification as a guide to reconstruct the claimed invention. That is, Lin is *completely silent* as to a purpose for the alleged protrusions/recesses. In fact, as admitted by the Examiner, the alleged protrusions/recesses are *unnumbered*, further emphasizing a lack of purpose therefor. Accordingly, contrary to the Examiner's allegation, there is NO "purpose *disclosed by Lin*" for the protrusions/recesses. Moreover, the alleged protrusions/recesses may simply be a preferred drawing convention and NOT actual protrusions/recesses.

Nevertheless, again contrary to the Examiner's allegation, there is no objective evidence *from the prior art* that it "would have been recognized in the pertinent art of Kuno et al. or Elgar et al." that the alleged protrusions/recesses of Lin are for the purpose of "improving heat exchange." In sum, "the purpose of improving heat exchange [was NOT] recognized by Lin" because Lin is *completely silent* as to any purpose for the alleged protrusions/recesses (which may not even be protrusions/recessions). Therefore, it is respectfully submitted that the Examiner is left without the requisite motivation or rationale *from the prior art* to make the proposed combination.

With respect to claim 8, as it *depends* from claim 6, it is respectfully submitted that claim 8 is patentable for at least the reason that claim 6 was not rejected.

(2) Claims 15-21

Claims 15-21 stand rejected under 35 U.S.C. §103(a) over Kuno et al. or Elgar et al. in view of Lin. This rejection is respectfully traversed for the following reasons.

First, because claim 15 has been amended in the same manner as claim 1, it is respectfully submitted that, for at least the same reasons discussed above with respect to claim 1, claim 15, and its dependent claims 16-21, 23 are patentable over Kuno et al. or Elgar et al. in view of Lin.

Second, it is respectfully submitted that the Examiner has not satisfied the requirements of 35 U.S.C. § 103. For example, claim 15 recites “**a cooling means** mounted on said heatsink.” The Examiner merely points out that “Lin discloses fan 30 mounted on the heat sink.” However, Lin is NOT the primary reference being relied on; but rather, the secondary reference for modifying either Kuno et al. and Elgar et al. Accordingly, the Examiner must provide some motivation or rationale from the prior art to *modify Kuno or Elgar et al.* with the teachings of Lin.

As is well known, according to Federal Circuit case law, under 35 U.S.C. §103(a) the U.S. Patent and Trademark Office has the burden of establishing a prima facie case of obviousness. The Patent Office can satisfy this burden “only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071(Fed. Cir. 1988). Thus, one must be able to point to something in the prior art that suggests in some way the modification of the particular reference to obtain the claimed invention. It is respectfully submitted that the Examiner has failed to satisfy this initial burden of showing *prima facie* obviousness because the Examiner has NOT provided any motivation or rationale for combining the teachings of Lin (i.e., fan 30) with either Kuno et al. or Elgar et al.

In fact, with respect to Elgar et al., it is respectfully submitted that the teachings of Lin (i.e., fan 30) could not be combined with the teachings of Elgar et al. Turning to Elgar et al., as admitted by the Examiner, they don’t disclose a cooling means. Moreover, the Examiner is

directed to the disclosure of Elgar et al., which sets forth that the “structure 14 clamps the cell firmly between the sinks so that the two electrodes of the cell are in good heat transfer relation with sinks”(page 2, lines 10-12 and Fig 1, 2). Accordingly, Elgar et al. discloses a specific *need* and purpose for the clamps 14.

It is therefore respectfully submitted that, assuming *arguendo* the Examiner set forth a proper rationale to place a fan 30 of Lin onto the heat sink of Elgar et al., such as construction would improperly *destroy the teachings* of Elgar et al. (by forcing removal of the clamps 14, which are essential elements of the Elgar et al. device) and would therefore evidence non-obviousness of the present invention. Even further, if the fan 30 of Lin was to be mounted on the clamp 14 of Elgar et al., the clamp 14 would effectively prevent (by blocking air flow) the alleged "cooling means" from cooling the fins, rendering the combination inoperable for its intended purpose.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 15 is patentable for the reasons set forth above, it is respectfully submitted that dependent claims 16-21, 23 which depend on claim 15 are also patentable.

Based on all the foregoing, Applicants respectfully request that the rejection of claims 4, 8 and 15-21 under 35 U.S.C. § 103 over Kuno et al. or Elgar et al. in view of Lin, be withdrawn.

(3) Claim 18

Claim 18 stands rejected under 35 U.S.C. § 103 over Jordan et al. in view of Lin. Claim 18 has been canceled and its modified limitations have been incorporated into claim 15. This

rejection of claim 15, as amended, is respectfully traversed for at least the reasons discussed above with respect to claim 1, and the lack of motivation *from the prior art* to make the combination of Jordan et al. and Lin.

Further, neither Jordan et al. or Lin disclose or suggest the limitation recited in claim 18 as admitted by the Examiner. That is, Jordan et al. was NOT relied on to disclose the limitation of claim 18, and Lin does NOT disclose or suggest "wherein a cross section of said column has one shape selected from trapezoid, triangle, and a shape whose sectional width decreases as it extends away from said heat receiving face."

It is noted that the rejection of claims 4, 8 and 18 are presented on the last page of the Office Action, *without any supporting rationale or motivation*. The Examiner does not even make the requisite "obviousness" statement (i.e., it would have been obvious to one of ordinary skill in the art ...). Accordingly, and further because neither Jordan et al. nor Lin disclose or suggest the limitation of claim 18, it appears that this rejection was *inadvertently* included in the Office Action.

V. CONCLUSION

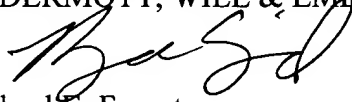
Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to contact Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

for  #46,692
Michael E. Fogarty
Registration No. 36,139

600 13th Street, N.W.
Washington, DC 20005-3096
(202) 756-8000 MEF:MWE
Date: May 30, 2001
Facsimile: (202) 756-8087